

SOCIALLY ASSISTIVE TECHNOLOGIES FOR ASD CHILDREN



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Abstract

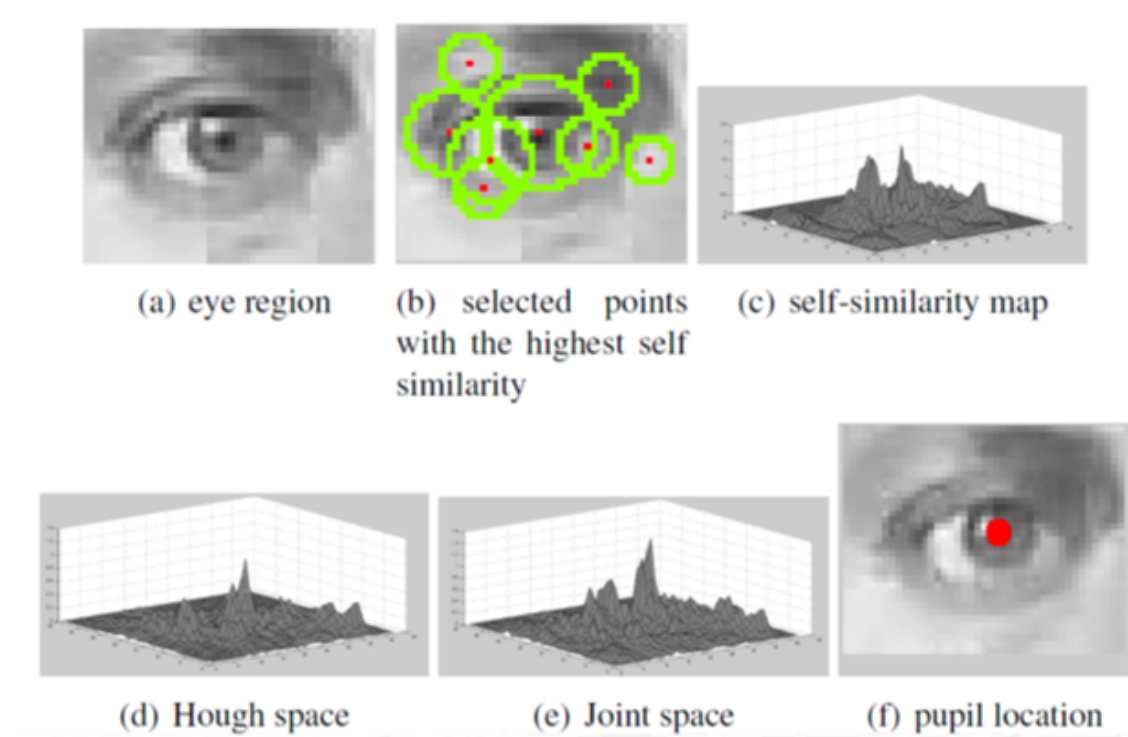
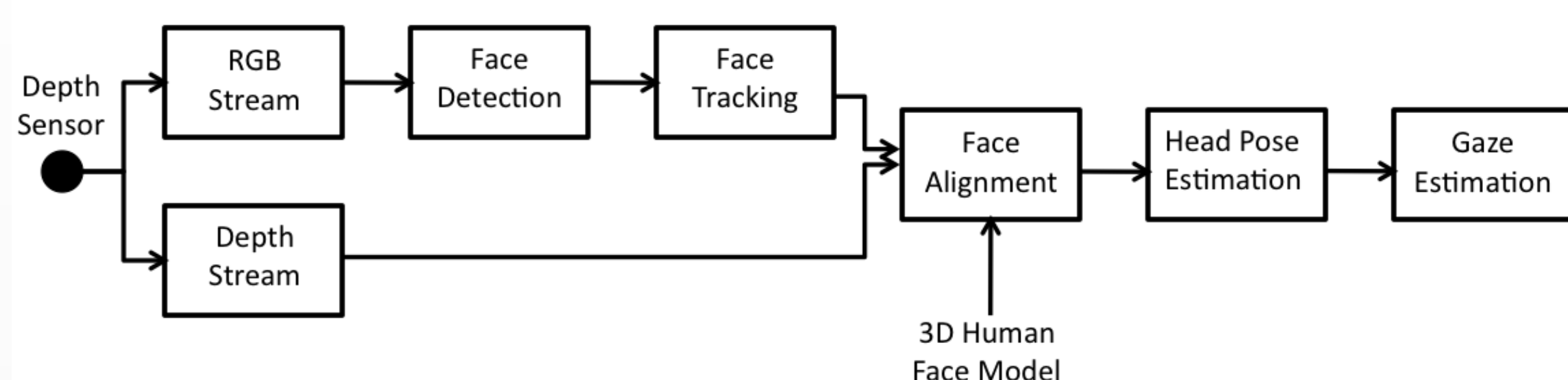
The lack of social interaction is one of the most debilitating deficit associated with autism spectrum disorder (ASD) [1]. Children affected by ASD have problems in paying attention, turn-taking, games and communication activities. We propose a set of solutions in order to improve quality of social interaction in ASD children. Our methods will be implemented on board of a socially assistive robot or installed in an ambient assisted living (AAL) and sessions will be subjected to the evaluation of a team composed by therapists and neuroscientists.

Tracking

Automatic object tracking is one of the most important application in computer vision (surveillance, human robot interaction and medical imaging). Activities concern on the investigation of the feasibility to replace TLD (Tracking - Learning - Detection) [2] feature descriptors in order to improve the overall detection and tracking performances of this very popular algorithm.

Free Gaze Estimation

Main activities in this research field are Pupil Detection [3] and Gaze Tracking [4]. Pupils are located in images (even with low resolution) containing near-frontal human faces. Gaze tracks are detected with a geometric method based on images extracted from a depth camera.



Facial Expression Recognition

In communication and interaction between people, facial expressions are useful and immediate for communicate emotion and social intentions. Our system will process the images taken from a camera and then the following procedural pipeline, according to recent survey [5], will allow the automatic evaluation of human facial expression.



References

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